

Part 4: Rail Transportation and Freight Movement

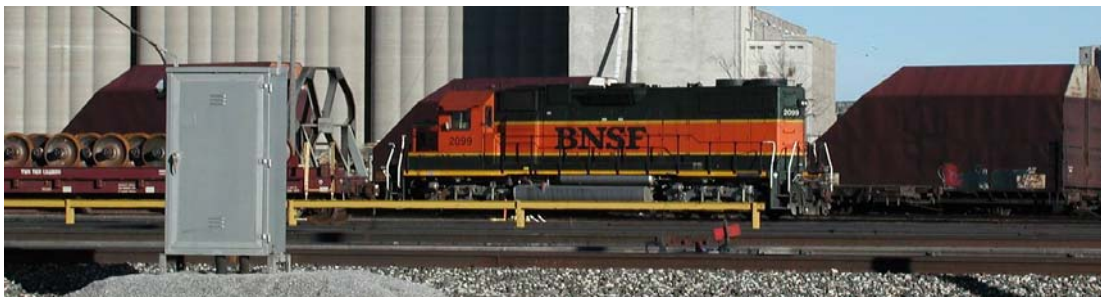
Overview

With a strong economic base focused on the manufacturing and skilled labor industries, freight movement has always been important to the WAMPO region. Now, as the movement of goods continues to grow due to a healthy economy, the result will be more trains, trucks, air cargo transport, and maritime traffic using the transportation system. More trucks on the region's highways will require capacity improvements and route upgrades. More trains at grade-crossings will mean more delay to motorists. Increases in air cargo will mean a need for better facilities and better connections to other modes. Finally, intermodal exchanges, locally and regionally, will need to be enhanced to improve the efficiency of goods delivery.

Background

According to the FHWA's Freight Analysis Framework (FAF), the State of Kansas in 1998 moved 248 million tons of goods worth \$162 billion. These goods were primarily moved on the state's highway system but a large share was carried by rail. By 2020, the Kansas transportation system is expected to carry 410 million tons of goods valued at \$457 billion. Freight will continue to be an important facet in the economic vitality of not only the state of Kansas, but the WAMPO region.

According to Federal Highway Administration estimations, trucks moved the largest percentage of the tonnage and value of shipments, followed by rail in the State of Kansas. Figures 3.4-1 and 3.4-2 show freight flows on highway and rail modes. Truck traffic is expected to grow throughout the state over the next 20 years. Much of the growth will occur in urban areas, such as Wichita, and on the Interstate highway system. The increase in truck volumes will need to be addressed as capacity decreases on truck routes in Kansas, mainly on the Interstate highway system and U.S. and state highways.



1998 and 2020 Daily Truck Traffic

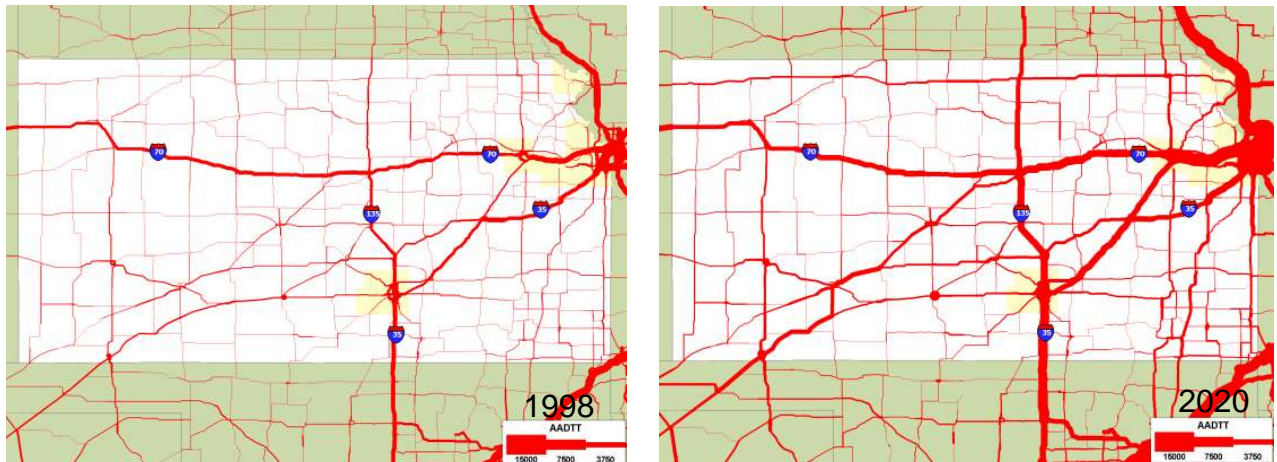


Figure 3.4-1: Estimated Average Annual Daily Truck Traffic: 1998 and 2020
(Source: Freight Analysis Framework, FHWA, November 2002.)

The estimated existing (1998) rail shipments are shown in Figure 3.4-2. Shipment by rail is expected to nearly double by 2020 in terms of tonnage shipped to, from, and within Kansas. Tonnage increases only mean more and longer trains transporting goods through the area. This will create longer waits at crossings, and the potential for increased congestion.

1998 Total Rail Freight Flows

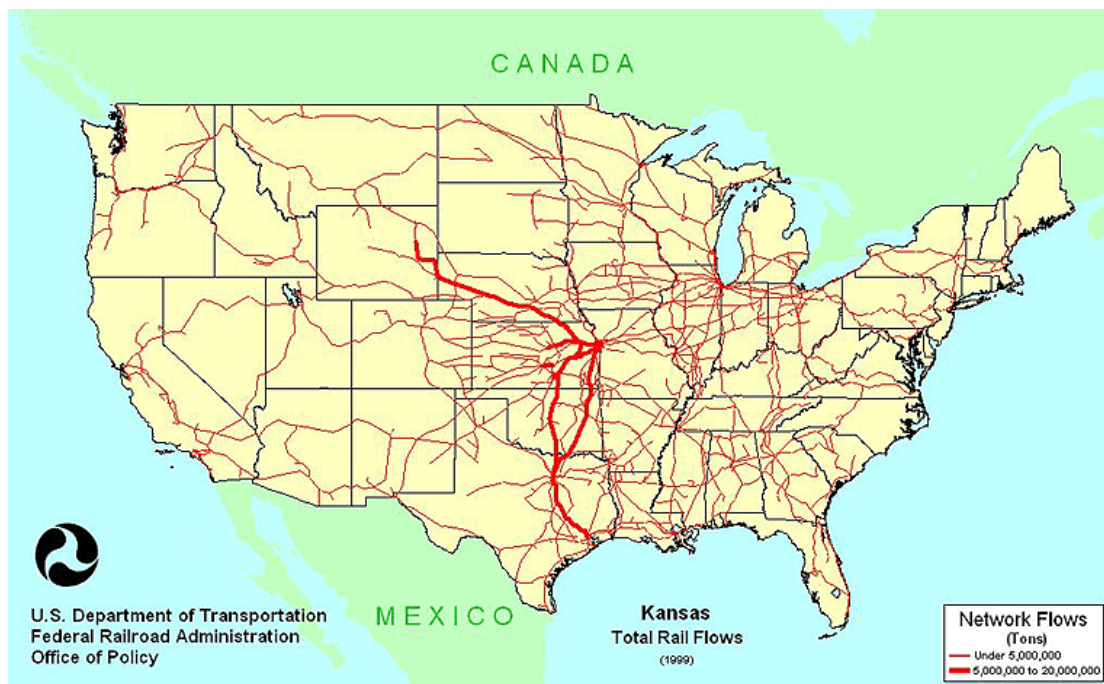


Figure 3.4-2: Total Rail Freight Flows: 1998 (tons)
Source: Freight Analysis Framework, FHWA, November 2002.

Local, Regional, and National Freight Studies

Locally, the City of Wichita and Sedgwick County commissioned a study to develop and evaluate alternative solutions to traffic delays, safety concerns, air pollution and other environmental effects of the Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) railroads. This study was issued in October 1997 and it investigated the feasibility of constructing a railroad bypass and potential improvements to the central railroad corridor.

From the Wichita/Sedgwick County Railroad Alternative Analysis came the Central Corridor project. The Central Corridor project extends from Douglas Street on the south to 18th Street on the north and is located just east of the downtown area. There are currently two main tracks and a number of siding and switching tracks throughout the project area. Critical to this project is the crossing of the BNSF and the UP Railroad within the Central Corridor limits. Grade separations are proposed at First, Second, Ninth, Thirteenth Streets, Central Avenue, and Murdock Avenue. Roads which will be closed as a result of this project include Tenth, Eleventh, and Eighteenth Streets. The vertical profile of the roadways to be constructed under the proposed rail will not be significantly altered nor will any lanes be added as a result of the construction. In a supplement to the original study, alternative railroad crossing studies were completed at 21st Street, Harry Street, Pawnee Avenue, MacArthur Road, 47th Street, and 63rd Street.

Regionally an effort has been made to improve and expand the Southwest Passage to link major markets, both regional and interstate, through rural areas to enhance the movement of people, products and services in a safe and timely manner. This coalition of local governments, civic groups, and businesses have come together to promote the improvement of US Highway 54 through Southwest Passage Initiative for Regional and Interstate Transportation (SPIRIT). Figure 3.4-3 is an illustration of the corridor that SPIRIT is focused on improving.

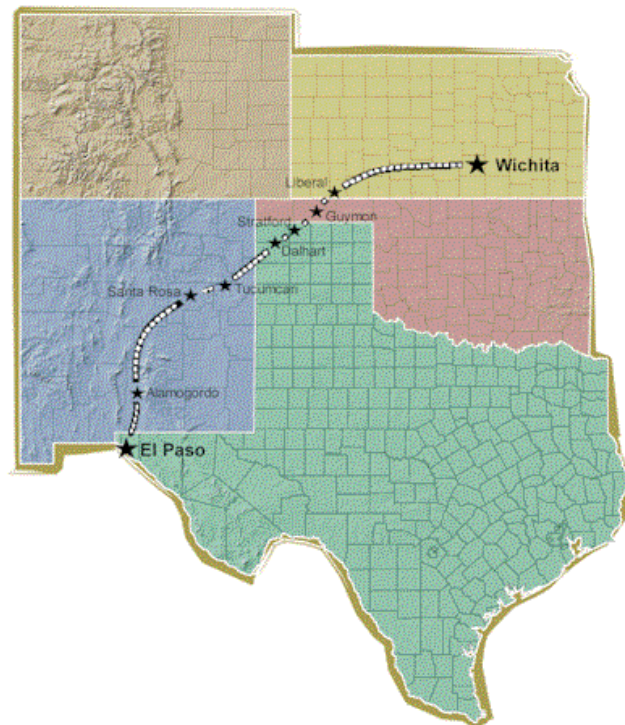


Figure 3.4-3: SPIRIT Corridor
(Source: <http://www.southwestpassage.org/>)



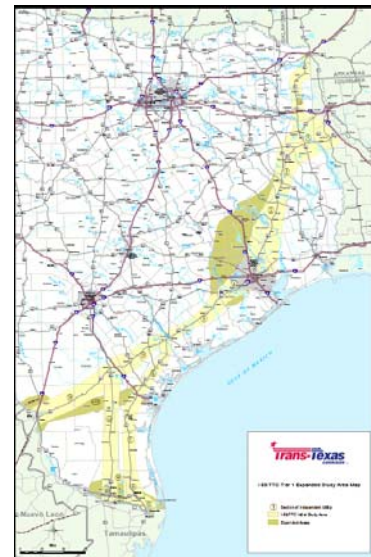
Recently an initiative has surfaced in Texas to outline a new vision for transportation. The initiative is called the Trans-Texas Corridor that is a multi-use, statewide network of transportation routes. The corridor is envisioned to include existing and new highways, railways and utility rights-of-way with separate lanes for passenger and truck traffic, freight and commuter rail, and a utility corridor for pipelines, transmission lines, and other services. This corridor

will be phased in over the next 50 years with initial planning and construction coordinated by the Texas Department of Transportation (TxDOT) with private vendors operating the day-to-day activities.

In early 2004, Federal environmental studies for both the Oklahoma to Mexico/Gulf Coast (TTC-35) element and Northeast Texas to Mexico (I-69/TTC) began (Figure 3.4-4). The first phase of these studies involve areas 20-100 miles wide that will be narrowed down during the process. A final route is not selected during this phase. Since routes have not been chosen At this time, the impact On the neighboring states cannot be determined. However, these corridors will have a great impact on neighboring states and the entire region if their full goods-carrying capacity is realized.



TTC-35



I-69/TTC

Figure 3.4-4: Trans-Texas Corridor Alternatives

It is important to keep abreast of these regional and national efforts to ensure that an influx or a diversion of freight movement mirrors the local efforts being made in the freight arena. A coordinated state and MPO administered program may help in understanding and addressing the impacts that these efforts have on the WAMPO region.

Current System

Wichita has a strong concentration of transportation modes that serve goods movement. Not only is the transportation network in place and improving, freight facilities are located here to aid in the interchange of modes and distribution of goods to the consumer. Figure 3.4-5 illustrates the transportation network and facilities located in the WAMPO region that will be discussed in this section.

Surface Modes

The area's economic focus on manufacturing and skilled labor means that parts and finished goods transport is highly dependent on a strong highway network to serve trucking. Wichita is located on Interstate 35, which connects to nearby Interstates 70 and 40. The area is also served by Interstate 135, U.S. 54, and numerous state highways. I-35 connects Wichita to Texas and the southern border of the United States as well as the Kansas City region and the upper Midwest. U.S. 54 is an east/west route connecting the WAMPO region to Western Kansas and the southwest states. Sixteen national and regional interstate common carriers have local terminal facilities.

There is currently no water transport in the WAMPO region, however, much of the area's agriculture products (i.e., grain, fertilizer) are carried by truck to the Port of Catoosa in Tulsa, Oklahoma. This inland river port on the McClellan-Kerr Arkansas River Navigation System transports goods through linkages to the Mississippi River and ports along the Gulf of Mexico. Access to the inland water transport system is also available via private ports along the Missouri River as well as public ports in Missouri, Iowa, and Nebraska.

Two Class I railroads and one shortline serve the WAMPO region. The UP and BNSF both run directly through the central business district. The UP runs from the northeast to the southwest. The BNSF runs from the northwest and exits to the southeast. The railroads come together to operate on the Wichita Union Terminal (WUT) railroad from Central Avenue to Lincoln Street near the central business district. The UP and BNSF are part owners of the WUT and by agreement the trains are controlled by the BNSF through the WUT. The UP has 10-12 trains each day. The BNSF has 25-35 trains daily.

The Kansas & Oklahoma (K&O) railroad is a shortline owned and operated by Watco that provides service into Wichita from the northwest and southwest. There is currently discussion of abandoning a portion of the Hutchinson subdivision that goes to the northwest due to the potential closure of the only customer on this line. Trains would be rerouted to the north on the BNSF Ark City Subdivision if trackage rights can be negotiated. The K&O operates about 3 trains per day in Wichita.

Freight Transportation Network

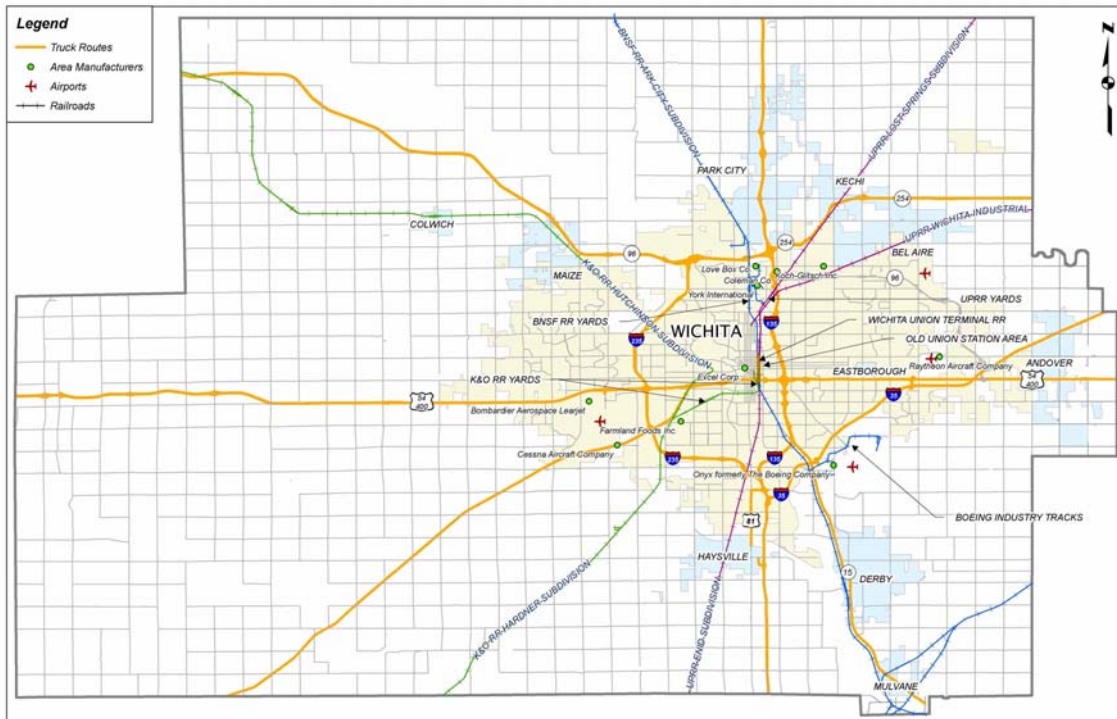


Figure 3.4-5: Freight Transportation Network and Facilities

Freight Facilities

Air freight movement in Wichita is unique due to the large number of aircraft manufacturing companies. The Wichita area is home to Onyx (formerly Boeing), Raytheon, Cessna, and Bombardier Aerospace Learjet, among other aviation-related companies that have their own airport facilities or commonly use the Mid-Continent and Colonel James Jabara Airports. The quantity of air freight is relatively low in comparison to the amount carried by trucks or trains, but the travel time is significantly less. According to Airport Master Plan, Wichita's Mid-Continent Airport currently carries approximately 35,000 tons of air freight per year and will grow to approximately 78,000 tons in twenty years.

Located approximately five miles south of the airport is the 280-acre Sedgwick County, Kansas foreign trade zone. A Foreign Trade Zone is a general purpose zone where foreign and domestic goods are considered not to be within U.S. Customs Territory and users are exempt from paying duty or federal excise tax while the goods remain in the zone or are exported. This facility has 800,000 square feet of warehouse and assembly space, as well as building sites for new manufacturing facilities. The site is served by rail and located near the highway system. Facilities like these are hubs of freight movement and provide for efficient operations through transportation connections that support their activities.

Each of the railroads in the WAMPO region operates yards for transferring goods to and from rail cars and assembling trains. The UP yard has a 1,170 car handling capacity. The BNSF N. Broadway yard has approximately 500 – 700 car capacity. The BN Frisco yard has about a 300 car capacity. The K&O Hardtner Subdivision yard is located near downtown Wichita and has a 300 car capacity, the Harry Street yard holds 150 – 200 cars and the South Junction yard holds around 100 cars.

Intermodal Freight Transport

Intermodal refers to the movement of goods by two or more modes of transportation. Typically, these moves involve truck and rail transfers. The nearest truck-rail intermodal facilities to Wichita are in the Kansas City area.

Another intermodal transfer that occurs is between truck and air modes. To support these moves the route from U.S.54 south to the Mid-Continental Drive and Air Cargo Road to the Mid-Continent Airport is designated as a National Highway System (NHS) Intermodal Connector. NHS freight connectors are public roads that connect intermodal terminals, the airport in this case, to the highway network. These routes are considered critical elements of the transportation system for efficient goods delivery.

Stakeholder Input

Stakeholders were interviewed in the initial plan stages to gain a perspective on current system operations and their potential future needs. Representatives from each of the railroads, the Federal Railroad Administration, city, county, state, and from the local Chamber of Commerce were each interviewed.

The main input received from the rail contacts regarded advancing at-grade rail crossing separations. Target areas for grade separations were 21st Street, Lincoln Street, and Pawnee Street. Several stakeholders indicated that Pawnee Street was a top priority because these crossings have the highest impact on vehicular traffic. Input received regarding the intermodal facility pointed to locations near 21st Street. There was also interest in conducting a local investigation into the feasibility of an intermodal facility as local transportation costs increased when the Newton, Kansas intermodal facility was closed.

The state and federal government contacts and the Chamber of Commerce took on a wider perspective where “all freight is global” and noted that better national connections to the southeast and southwest would help maintain the economic engine for agriculture and manufacturing in the WAMPO region. It was noted that 40 percent of the wheat from the area is transported by truck or rail to the Port of Catoosa in Oklahoma, with fertilizer being transported on the backhaul. Kansas is the number one wheat producer in the nation and the WAMPO region produces greater than 5 million bushels per year. With this volume of grain transport it is important to promote investment in these travel routes to guarantee their economic vitality.

Regional Needs Assessment

It is important to recognize that infrastructure improvements not only provide benefit to passenger vehicle travel but these same improvements can greatly impact the movement of freight. When bridge clearances are raised or weight restrictions corrected, more routes are open to freight carriers potentially reducing travel times for delivery. This may not be viewed as a direct capacity investment but opening a new route to truck travel indirectly increases capacity because the new route, and its capacity, is now an available option. At this time information regarding height and weight restrictions is not readily available for the WAMPO region, but setting a framework and working toward collecting the appropriate data can easily advance the information needed to make a sound judgment on the condition of the transportation system as it relates to freight.

To assess freight issues, the planning agency requires a basis for making comparisons, determining needs and the role that public agencies can have in private business affairs. Consequently, the establishment of the Freight Zones and Corridors allows review of proposed freight mobility improvement projects, by determining whether the project is located within a freight zone or along a freight corridor. Table 3.4-1 presents potential criteria that could be used to categorize roadways based on their freight benefit potential. Higher scores can be given to projects within the freight zone and along freight corridors depending upon their level of significance. A conceptual map illustrating freight zones and corridors is shown in Figure 3.4-6.

Truck Route Significance			
Level	Truck Volume	Functional Classification	Other
National	> 2,000 per day	Interstate or State Highways	Mainly designated/supported by Federal authorities
Statewide	> 1,000 per day	State Highways, County Roads	Mainly designated/supported by State authorities
Regional	> 500 per day	State Highways, County Roads	MPO, regionwide support to industrial areas or freight zones
Local	> 250 per day	State Highways, County Roads, Major Arterials	Connects local industry or freight facilities to regional or national routes or local origins/destinations

Table 3.4-1: Truck Route Significance Criteria

Freight Zones and Corridors

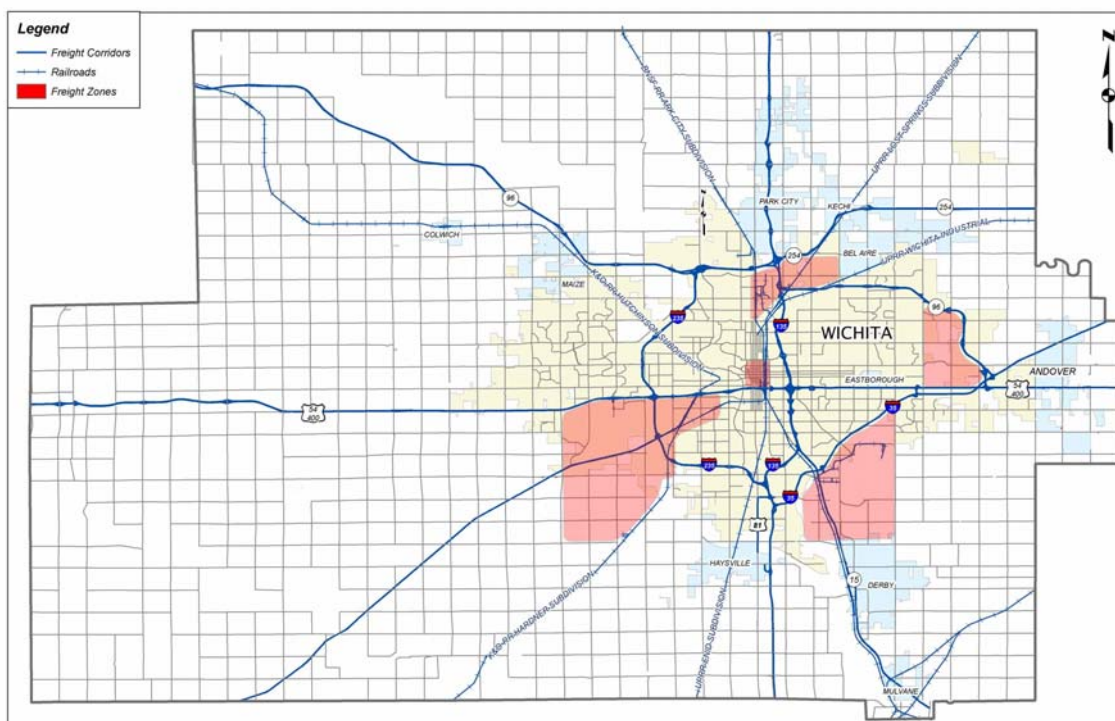


Figure 3.4-6: WAMPO Region Freight Zones and Corridors

For the WAMPO region, truck route designation and significance could help to justify investment in pavement upgrades, bridge replacements, and capacity improvements. Simple truck traffic volume data collection could be integrated into current volume collection programs to aid in route significance and categorization. Similar designations can be made for railroads based on the number of trains per day, length of trains, or tonnage carried. Significance designations can aid in determining which routes should have priority when considering capacity improvements or grade crossing separations.

Assessing safety in relation to the region's freight movements, benefits both the private industries dependent on goods shipments and the general traveling public. When at-grade rail-highway crossings are eliminated travel time decreases for both the train and vehicles and safety is increased. The identification of safety needs in this plan will focus on highway-rail grade crossings and the models developed by the U.S. DOT as part of their Web Accident Prediction System (WBAPS). This system is not a ranking of crossings in terms of most to least dangerous, it is a system that can assist in determining where scarce funding resources can be best directed.

The WBAPS system is based upon two independent factors including (1) basic data about a crossing's physical and operating characteristics and (2) five years of accident history data at the crossing. The formula results in a value that

indicates conditions are such that one crossing may possibly be more hazardous than another based on the specific data that is in the program. At best, the results can be used to nominate crossings for further investigation and review by traffic engineers and railroad specialists, on the appropriate action to be taken to alleviate the potential hazards.

The U.S. DOT database was used to gather data on crossings in Sedgwick County and Table 3.4-2 presents the top ten highway-rail grade crossing locations. Exposure, or the number of passenger vehicles at a particular crossing, is an important measure in evaluating crossings, and is integrated into the formula used by the U.S. DOT. Other measures such as sight-distance, highway congestion, bus or hazardous material traffic, and topography are not included in these formulas and should be considered as important elements when evaluating crossings.

Highway-Rail Grade Crossing Accident Prediction Value

Crossing ID Number	Railroad	Street	AADT	Total Trains	DOT Accident Prediction Value
439341K	UP	Webb Road	1,697	4	0.121448
445106B	UP	Central/K-96	12,023	14	0.119799
009265H	BNSF	18th Street	257	33	0.101801
445105U	UP	Murdock Street	8,788	14	0.096572
445179L	K&O	West	10,851	6	0.081268
009351E	BNSF	Waterman Street	5,444	4	0.080364
009286B	BNSF	Pawnee Avenue	20,536	33	0.079347
445207M	K&O	37th Street N	568	4	0.078082
009268D	BNSF	13th Street	14,898	33	0.077939
445108P	UP	3rd Street	2,889	14	0.077030

Table 3.4-2: Highway-Rail Grade Crossing Accident Prediction Value: Top 10 Locations

Since this list cannot exclusively be used as the top crossings that need to be grade-separated, a study should be completed to address highway-rail grade crossings and appropriate actions to be taken at each crossing.

Regional Projects

The definition of regional projects is a culmination and integration of the current system data, the methodology used to identify regional needs and eventually a process to lay the groundwork for project recommendations. This section is divided into current and programmed projects and is followed by a series of suggestions for establishing future priorities.

Current and Programmed Projects

Several major freight-related projects are either under construction or recently completed, including the Central Corridor project for both rail and highway, and the recent completion of the grade separations for vehicles (including over 1,000 trucks per day) along US-54/400. The Pawnee/UP crossing project is listed as a 2006 programmed project. These projects will have significant benefits to the freight community in terms of reduced congestion that will likely result in increased productivity and reduced transportation costs.

The City of Wichita, in partnership with the Kansas World Trade Center, will receive federal funding to conduct a feasibility study and work plan for implementing an international trade processing center. The study would include determining the feasibility of an inland port, identification of key partners, facility and infrastructure needs and costs, and other related work. The product of this appropriation could address many of the questions and needs brought forth in this LRTP.

Suggested Priorities

Institutionally, it is important to continue monitoring TIP projects related to freight mobility. The Freight Zone and Corridor concept should allow for a greater accounting of benefits to the freight community from the numerous roadway improvement projects that come forth from other sources, yet nonetheless benefit the freight community. For instance, when a capacity improvement is done on a roadway near a top industry, the freight delivery to that industry will benefit as much or more than the passenger cars that likely pressed for the improvement. This will help to assist in taking “freight credit” for non-freight projects, while also recognizing that other specific freight-related projects may need to be developed on their own, such as targeting weight and height restrictions on truck routes and freight corridors. Also, better regional connections to the southeast and southwest could be provided while recognizing that regional efforts, like SPIRIT and Trans Texas, may impact what is done locally.

Establishing a standing Freight or Goods Movements Committee to act as a partner and maintain communications between the public and private sector is encouraged. This Committee would be able to keep abreast of the various regional and national activities that impact the transportation system.

Safety should always play a key role in developing priorities. Also, motorist delay is a key component in developing priorities. The information on railroad crossings suggests that several locations could be improved to promote safety and reduce delay. While the accident prediction value at Webb Road, as well as Central Avenue is high, discussions with stakeholders show a greater interest and need at the Pawnee crossing. Based upon available funding, these issues could be addressed through a study determining the needs at highway-railroad grade crossings and subsequent improvements. It is suggested funding be researched to make safety improvements at railroad crossings. Such improvements can be achieved through physical construction but also public education efforts such as Operation Lifesaver should be encouraged.

The process to develop priorities must always include the follow up elements that result from on-going activities and programmed projects. The study for the International Trade Processing Center will likely make several recommendations that should be considered.

Summary

With more trains, trucks, air cargo transport, and maritime traffic using the transportation system, opportunities to improve goods movement in this region can be created. With more trucks on the area highways it will be important to use the Freight Zone and Corridors concept to aid in prioritizing projects that will add capacity to the transportation system and benefit goods movement. Safety and delay concerns, especially at highway-rail grade crossings, suggest that studying the needs at grade crossings would be valuable.

Looking at the overall rail and freight environment, including facilities, policy and connectivity, can improve not only transportation conditions but the overall economic stability of the region.